

WHAT IS CLAIMED IS:

- 5           1. An electrodeionization apparatus, comprising:
- a plurality of anion exchange membranes and a plurality of cation exchange membrane that are alternately arranged between a cathode and an anode to alternately form at least one concentrating compartment and at least one desalting compartment, wherein
- 10           the concentrating compartments and the desalting compartments are filled with ion exchangers, and a filling ratio of anion exchanger to cation exchanger of the ion exchanger in the concentrating compartments is higher than a filling ratio of anion exchanger to cation exchanger of the ion exchanger in the desalting compartments.
2. The electrodeionization apparatus according to claim 1, which comprises a
- 15           plurality of concentrating compartments and a plurality of desalting compartments, wherein the filling ratio of anion exchanger to cation exchanger of the ion exchanger in the concentrating compartments ranges from 75/25 to 95/5.
3. The electrodeionization apparatus according to claim 1 or 2, wherein the ion exchanger in the concentrating compartment comprises a mixed ion exchange resin
- 20           comprising an anion exchange resin and a cation exchange resin, wherein a crosslinking degree of the anion exchange resin is 3-8%, and a crosslinking degree of the cation exchange resin is 5-10% .
4. The electrodeionization apparatus according to any one of claims 1-3, wherein a ratio of a water introduction rate (L/h) into the desalting compartment to an
- 25           effective area (dm<sup>2</sup>) of the anion exchange membrane in the desalting compartment is 5 or higher.
5. The electrodeionization apparatus according to any one of claims 1-4, which

5 satisfies at least one of the following two conditions (1) and (2):

(1) a ratio of a carbonate loading ( $\text{mg-CO}_2/\text{h}$ ) into the desalting compartment to an effective area ( $\text{dm}^2$ ) of the anion exchange membrane in the desalting compartment being 80 or higher; and

10 (2) a ratio of a silica loading ( $\text{mg-SiO}_2/\text{h}$ ) into the desalting compartment to an effective area ( $\text{dm}^2$ ) of the anion exchange membrane in the desalting compartment being 8 or higher.

6. The electrodeionization apparatus according to any one of claims 1-5, wherein a current density of  $300\text{mA}/\text{dm}^2$  or higher is applied.

7. The electrodeionization apparatus according to any one of claims 1-6, wherein the concentrating compartment is filled with an anion exchange resin that comprises a thermostable anion exchange resin.